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10/003,663	10/26/2001	Michel Deeba	4748	6852

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EXAMINER

MEDINA SANABRIA, MARIBEL

ART UNIT PAPER NUMBER

1754

DATE MAILED: 07/14/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/003,663

Applicant(s)

DEEBA ET AL.

Examiner

Maribel Medina

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-62 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### **Information Disclosure Statement**

1. The reference EP 0 992 276 A1 submitted on the information disclosure statement filed 5/08/03 has not been considered since it was considered on the IDS filed on 10/26/01 (See attached PTO Forms 1449)

### **Claim Objections**

2. Claims 50 and 53 are objected to because of the following informalities:
- a. Claim 50 depends from claim 30, however, claim 30 is directed to a composite and not to a method, the dependency of claim 50 should be changed to claim 32.
  - b. Claim 53 depends from claim 52, however claim 52 is directed to a method claim and not to a composite, the claim should be amended to read --The method of claim 52...-- Appropriate correction is required.

### **Claim Rejections - 35 USC § 102**

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2, 4-5, 9-17, and 19-31 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,459,119 (Abe et al).

In regards to claim 1, Abe et al disclose a three layered catalyst comprising: a) a carrier (See col. 2, lines 38-40); b) a first platinum-containing layer deposited on the carrier, said first

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layer comprising a high surface area refractory metal oxide; c) a Pd-containing second layer deposited on the first layer, said second layer comprising palladium deposited on a high surface area refractory metal oxide, and having substantially no oxygen storage component; and d) a third layer deposited on the second layer, said third layer comprising: (i) platinum and/or rhodium and (ii) an oxygen storage component, deposited on a high surface area refractory metal oxide (See col. 9, lines 40-57; col. 10, lines 13-43 and figures 1C and 1D).

In regards to the limitations of claim 1 that reads “high surface area refractory metal oxide”, Abe et al disclose in col. 4, line 66 to col. 5, line 3, that the noble metals are loaded on heat resistant inorganic oxides such as active alumina, zirconia, silica, titania, zeolite, etc.

In regards to the limitation of claim 1 step (c) that reads “and having substantially no oxygen storage components” Abe et al disclose in col. 11, line 53 to col. 12, line 6, that a slurry containing only palladium and alumina is used as the second layer.

In regards to the limitation of claim 1 step (d) that reads “(ii) an oxygen storage component,” Abe et al disclose in col. 5, lines 10-20, that a rare earth element oxide may be added to the heat resistant inorganic oxide and the rare earth metal provides oxygen storage capacity.

In regards to claims 2 and 4, Abe et al disclose in col. 15 table #2 in example #4 a washcoat loading of the first layer of 0.03 g/cc (0.5 g/in<sup>3</sup>) and for the third layer a loading of 0.06 g/cc (0.98 g/in<sup>3</sup>).

In regards to claim 5, Abe et al disclose in col. 5, lines 4-6 the use of active alumina (i.e. gamma alumina) (See examples) of surface area of 100 m<sup>2</sup>/g or more.

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In regards to claim 9, Abe et al disclose that platinum can be loaded in an amount of 10-100 g/ft<sup>3</sup> (See col. 5, line 66).

In regards to claim 10, 11 and 12, Abe et al disclose the addition of a rare earth metal or a compound of a rare earth metal and zirconia to the refractory metal oxide (Alumina) in the first layer in a range from 2-30 wt. % based on the refractory metal oxide. The rare earth metal may be any of ceria, lanthanum or a compound thereof (See col. 5, lines 9-46).

In regards to claims 13, 14, 19, 20, 28 and 29 Abe et al does not disclose the addition of a stabilizer to the first, second, or third layer, therefore it meets the limitation of 0 g/in<sup>3</sup>. The limitations of claims 14, 20, and 29 have been noted but not considered, since the instantly claimed limitations (stabilizers) are not required by the claims from which these claims depend from.

In regards to claims 15, 16, 21, 22, 30 and 31, Abe et al disclose the addition of zirconia and lanthanum to the first, second and third layer refractory inorganic oxide in a range of 2-30 % by weight based on the inorganic oxide (see col. 5, lines 9-46).

In regards to claim 17, Abe et al disclose that any of the layers may contain two or more noble metals in any desired combination (See col. 11, lines 20-25) and disclose in col. 5, lines 62-67 a Pd loading of from 10-100 g/ft<sup>3</sup> and a Pt loading of 10-100 g/ft<sup>3</sup>.

In regards to claims 23-24, Abe et al disclose that any of the layers may contain two or more noble metals in any desired combination (See col. 11, lines 20-25) and disclose in col. 5, lines 62-67, a Rh loading of from 2.5-15 g/ft<sup>3</sup> and a Pt loading of 10-100 g/ft<sup>3</sup>.

In regards to claims 25-27, Abe et al disclose the addition of a rare earth metal or a compound of a rare earth metal and zirconia to the refractory metal oxide (Alumina) in the third

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layer in a range from 2-30 wt. % based on the refractory metal oxide. The rare earth metal may be any of ceria, lanthanum or a compound thereof (See col. 5, lines 9-46).

No difference is seen between the instantly claimed composite and Abe et al catalyst composition.

5. Claims 32-33, 35-36, 40-44, and 46-62 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,459,119 (Abe et al).

In regards to claim 32, Abe et al disclose a method for treating a gas comprising nitrogen oxide, hydrocarbons and carbon monoxide (see col. 1, lines 12-16) which comprises flowing the gas through a three layered catalyst comprising: a) a carrier (See col. 2, lines 38-40); b) a first platinum-containing layer deposited on the carrier, said first layer comprising a high surface area refractory metal oxide; c) a Pd-containing second layer deposited on the first layer, said second layer comprising palladium deposited on a high surface area refractory metal oxide, and having substantially no oxygen storage component; and d) a third layer deposited on the second layer, said third layer comprising: (i) platinum and/or rhodium and (ii) an oxygen storage component, deposited on a high surface area refractory metal oxide (See col. 9, lines 40-57; col. 10, lines 13-43 and figures 1C and 1D).

In regards to the limitations of claim 32 that reads "high surface area refractory metal oxide", Abe et al disclose in col. 4, line 66 to col. 5, line 3, that the noble metals are loaded on heat resistant inorganic oxides such as active alumina, zirconia, silica, titania, zeolite, etc.

In regards to the limitation of claim 32 step (c) that reads "and having substantially no oxygen storage components" Abe et al disclose in col. 11, line 53 to col. 12, line 6, that a slurry containing only palladium and alumina is used as the second layer.

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In regards to the limitation of claim 32 step (d) that reads “(ii) an oxygen storage component,” Abe et al disclose in col. 5, lines 10-20, that a rare earth element oxide may be added to the heat resistant inorganic oxide and the rare earth metal provides oxygen storage capacity.

In regards to claims 33 and 35, Abe et al disclose in col. 15, table #2, example #4 a washcoat loading of the first layer of 0.03 g/cc ( $0.5 \text{ g/in}^3$ ) and for the third layer a loading of 0.06 g/cc ( $0.98 \text{ g/in}^3$ ).

In regards to claim 36, Abe et al disclose in col. 5, lines 4-6 the use of active alumina (i.e. gamma alumina) (See examples) of surface area of  $100 \text{ m}^2/\text{g}$  or more.

In regards to claim 40, Abe et al disclose that platinum can be loaded in an amount of 10-100 g/ft<sup>3</sup> (See col. 5, line 66).

In regards to claim 41, 42 and 43, Abe et al disclose the addition of a rare earth metal to the refractory metal oxide (Alumina) in the first layer in a range from 2-30 wt. % based on the refractory metal oxide. The rare earth metal may be any of ceria, lanthanum or a compound thereof (See col. 5, lines 9-46).

In regards to claims 46, 47, 50, 51, 59, and 60 Abe et al does not disclose the addition of a stabilizer to the first, second, and third layer, therefore it meets the limitation of  $0 \text{ g/in}^3$ . The limitations of claims 47, 51, and 60 have been noted but no considered, since the instantly claimed limitations (stabilizers) are not required by the claims from which these claims depend from.

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In regards to claims 48, 49, 52, 53, 61 and 62, Abe et al disclose the addition of zirconia and lanthanum to the first, second and third layer refractory inorganic oxide in a range of 2-30 % by weight based on the inorganic oxide (see col. 5, lines 9-46).

In regards to claim 44, Abe et al disclose that any of the layers may contain two or more noble metals in any desired combination (See col. 11, lines 20-25) and disclose in col. 5, lines 62-67 a Pd loading of from 10-100 g/ft<sup>3</sup> and a Pt loading of 10-100 g/ft<sup>3</sup>.

In regards to claims 54-55, Abe et al disclose that any of the layers may contain two or more noble metals in any desired combination (See col. 11, lines 20-25) and disclose in col. 5, lines 62-67, a Rh loading of from 2.5-15 g/ft<sup>3</sup> and a Pt loading of 10-100 g/ft<sup>3</sup>.

In regards to claims 56-58, Abe et al disclose the addition of a rare earth metal or a compound of rare earth metal and zirconia to the refractory metal oxide (Alumina) in the third layer in a range from 2-30 wt. % based on the refractory metal oxide. The rare earth metal may be any of ceria, lanthanum or a compound thereof (See col. 5, lines 9-46).

No difference is seen between the instantly claimed method and Abe et al catalyst method.

**Claim Rejections - 35 USC § 103**

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3,6-8, 18, 34, 37-39 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al.



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Abe et al apply herein as above. In regards to claims 3, 6-8, 18, 34, 37-39 and 45 Abe et al fail to disclose the claimed loading ranges. However, Abe et al recognizes that the amounts of palladium, platinum and rhodium loaded in the refractory inorganic oxide are result effective variables (See col. 5, line 47 to col. 6, line 5).

Note that the loading amounts of all the components are related to each other, therefore since the loading rates of the noble metals are result effective variables, the loading rate of metal oxide and loading rate of the layer are also result effective variable.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have determined by experimentation the claimed loading amounts of palladium, platinum, rhodium and thereby the loading amounts of the refractory inorganic oxide (alumina) and the catalyst layers loading rates since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

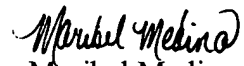
### **Conclusion**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maribel Medina whose telephone number is (703) 305-1928. The examiner can normally be reached on Monday through Friday from 7:30 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (703) 308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
Maribel Medina  
Examiner  
Art Unit 1754

Mm  
July 10, 2003